

SEQUENCE LISTING

<110> Luche, Ralf M.
Wei, Bo

<120> DSP-15 DUAL-SPECIFICITY PHOSPHATASE

<130> 200125.433

<140> US
<141> 2001-09-18

<160> 27

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1980
<212> DNA
<213> Homo sapiens

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gagcaggagc agggcagggg gcagggggcag ggagagccct gcatttcctc tacgcccagg 1920
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<210> 2
<211> 659
<212> PRT
<213> Homo sapiens

<400> 2
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Thr Pro Val Gly Pro Trp Asp Gln Ala Val Gln Arg Arg Ser Arg Leu
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Gln Arg Arg Gln Ser Phe Ala Val Leu Arg Gly Ala Val Leu Gly Leu
35 40 45
Gln Asp Gly Gly Asp Asn Asp Asp Ala Ala Glu Ala Ser Ser Glu Pro
50 55 60
Thr Glu Lys Ala Pro Ser Glu Glu Glu Leu His Gly Asp Gln Thr Asp
65 70 75 80
Phe Gly Gln Gly Ser Gln Ser Pro Gln Lys Gln Glu Glu Gln Arg Gln
85 90 95
His Leu His Leu Met Val Gln Leu Leu Arg Pro Gln Asp Asp Ile Arg
100 105 110
Leu Ala Ala Gln Leu Glu Ala Pro Arg Pro Pro Arg Leu Arg Tyr Leu
115 120 125
Leu Val Val Ser Thr Arg Glu Gly Glu Gly Leu Ser Gln Asp Glu Thr
130 135 140
Val Leu Leu Gly Val Asp Phe Pro Asp Ser Ser Pro Ser Cys Thr
145 150 155 160
Leu Gly Leu Val Leu Pro Leu Trp Ser Asp Thr Gln Val Tyr Leu Asp
165 170 175
Gly Asp Gly Gly Phe Ser Val Thr Ser Gly Gly Gln Ser Arg Ile Phe
180 185 190
Lys Pro Ile Ser Ile Gln Thr Met Trp Ala Thr Leu Gln Val Leu His
195 200 205
Gln Ala Cys Glu Ala Ala Leu Gly Ser Gly Leu Val Pro Gly Gly Ser
210 215 220
Ala Leu Thr Trp Ala Ser His Tyr Gln Glu Arg Leu Asn Ser Glu Gln
225 230 235 240
Ser Cys Leu Asn Glu Trp Thr Ala Met Ala Asp Leu Glu Ser Leu Arg
245 250 255
Pro Pro Ser Ala Glu Pro Gly Gly Ser Ser Glu Gln Glu Gln Met Glu
260 265 270
Gln Ala Ile Arg Ala Glu Leu Trp Lys Val Leu Asp Val Ser Asp Leu
275 280 285
Glu Ser Val Thr Ser Lys Glu Ile Arg Gln Ala Leu Glu Leu Arg Leu
290 295 300
Gly Leu Pro Leu Gln Gln Tyr Arg Asp Phe Ile Asp Asn Gln Met Leu
305 310 315 320
Leu Leu Val Ala Gln Arg Asp Arg Ala Ser Arg Ile Phe Pro His Leu
325 330 335
Tyr Leu Gly Ser Glu Trp Asn Ala Ala Asn Leu Glu Glu Leu Gln Arg
340 345 350
Asn Arg Val Thr His Ile Leu Asn Met Ala Arg Glu Ile Asp Asn Phe
355 360 365
Tyr Pro Glu Arg Phe Thr Tyr His Asn Val Arg Leu Trp Asp Glu Glu
370 375 380
Ser Ala Gln Leu Leu Pro His Trp Lys Glu Thr His Arg Phe Ile Glu

| | | | |
|---|-----|-----|-----|
| 385 | 390 | 395 | 400 |
| Ala Ala Arg Ala Gln Gly Thr His Val Leu Val His Cys Lys Met Gly | | | |
| 405 | 410 | 415 | |
| Val Ser Arg Ser Ala Ala Thr Val Leu Ala Tyr Ala Met Lys Gln Tyr | | | |
| 420 | 425 | 430 | |
| Glu Cys Ser Leu Glu Gln Ala Leu Arg His Val Gln Glu Leu Arg Pro | | | |
| 435 | 440 | 445 | |
| Ile Ala Arg Pro Asn Pro Gly Phe Leu Arg Gln Leu Gln Ile Tyr Gln | | | |
| 450 | 455 | 460 | |
| Gly Ile Leu Thr Ala Ser Arg Gln Ser His Val Trp Glu Gln Lys Val | | | |
| 465 | 470 | 475 | 480 |
| Gly Gly Val Ser Pro Glu Glu His Pro Ala Pro Glu Val Ser Thr Pro | | | |
| 485 | 490 | 495 | |
| Phe Pro Pro Leu Pro Pro Glu Pro Glu Gly Gly Glu Glu Lys Val | | | |
| 500 | 505 | 510 | |
| Val Gly Met Glu Glu Ser Gln Ala Ala Pro Lys Glu Glu Pro Gly Pro | | | |
| 515 | 520 | 525 | |
| Arg Pro Arg Ile Asn Leu Arg Gly Val Met Arg Ser Ile Ser Leu Leu | | | |
| 530 | 535 | 540 | |
| Glu Pro Ser Leu Glu Leu Glu Ser Thr Ser Glu Thr Ser Asp Met Pro | | | |
| 545 | 550 | 555 | 560 |
| Glu Val Phe Ser Ser His Glu Ser Ser His Glu Glu Pro Leu Gln Pro | | | |
| 565 | 570 | 575 | |
| Phe Pro Gln Leu Ala Arg Thr Lys Gly Gly Gln Gln Val Asp Arg Gly | | | |
| 580 | 585 | 590 | |
| Pro Gln Pro Ala Leu Lys Ser Arg Gln Ser Val Val Thr Leu Gln Gly | | | |
| 595 | 600 | 605 | |
| Ser Ala Val Val Ala Asn Arg Thr Gln Ala Phe Gln Glu Gln Glu Gln | | | |
| 610 | 615 | 620 | |
| Gly Gln Gly Gln Gly Gln Gly Glu Pro Cys Ile Ser Ser Thr Pro Arg | | | |
| 625 | 630 | 635 | 640 |
| Phe Arg Lys Val Val Arg Gln Ala Ser Val His Asp Ser Gly Glu Glu | | | |
| 645 | 650 | 655 | |
| Gly Glu Ala | | | |

<210> 3
<211> 156
<212> PRT
<213> Homo sapiens

<400> 3

| | | | |
|---|-----|-----|----|
| Asp Gly Ser Pro Leu Ser Asn Ser Gln Pro Ser Phe Pro Val Glu Ile | | | |
| 1 | 5 | 10 | 15 |
| Leu Pro Phe Leu Tyr Leu Gly Cys Ala Lys Asp Ser Thr Asn Leu Asp | | | |
| 20 | 25 | 30 | |
| Val Leu Glu Glu Phe Gly Ile Lys Tyr Ile Leu Asn Val Thr Pro Asn | | | |
| 35 | 40 | 45 | |
| Leu Pro Asn Leu Phe Glu Asn Ala Gly Glu Phe Lys Tyr Lys Gln Ile | | | |
| 50 | 55 | 60 | |
| Pro Ile Ser Asp His Trp Ser Gln Asn Leu Ser Gln Phe Phe Pro Glu | | | |
| 65 | 70 | 75 | 80 |
| Ala Ile Ser Phe Ile Asp Glu Ala Arg Gly Lys Asn Cys Gly Val Leu | | | |
| 85 | 90 | 95 | |
| Val His Cys Leu Ala Gly Ile Ser Arg Ser Val Thr Val Thr Val Ala | | | |
| 100 | 105 | 110 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Leu | Met | Gln | Lys | Leu | Asn | Leu | Ser | Met | Asn | Asp | Ala | Tyr | Asp | Ile |
| 115 | | | | | 120 | | | | 125 | | | | | | |
| Val | Lys | Met | Lys | Lys | Ser | Asn | Ile | Ser | Pro | Asn | Phe | Asn | Phe | Met | Gly |
| 130 | | | | | 135 | | | | 140 | | | | | | |
| Gln | Leu | Leu | Asp | Phe | Glu | Arg | Thr | Leu | Gly | Leu | Ser | | | | |
| 145 | | | | | 150 | | | | 155 | | | | | | |

<210> 4
<211> 156
<212> PRT
<213> Homo sapiens

| | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 4 | | | | | | | | | | | | | | | |
| Asp | Gly | Ser | Pro | Val | Pro | Ser | Ser | Gln | Pro | Ala | Phe | Pro | Val | Gln | Ile |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Leu | Pro | Tyr | Leu | Tyr | Leu | Gly | Cys | Ala | Lys | Asp | Ser | Thr | Asn | Leu | Asp |
| | | | | 20 | | | | 25 | | | | | 30 | | |
| Val | Leu | Gly | Lys | Tyr | Gly | Ile | Lys | Tyr | Ile | Leu | Asn | Val | Thr | Pro | Asn |
| | | | | 35 | | | | 40 | | | | 45 | | | |
| Leu | Pro | Asn | Ala | Phe | Glu | His | Gly | Gly | Glu | Phe | Thr | Tyr | Lys | Gln | Ile |
| | | | | 50 | | | | 55 | | | 60 | | | | |
| Pro | Ile | Ser | Asp | His | Trp | Ser | Gln | Asn | Leu | Ser | Gln | Phe | Phe | Pro | Glu |
| | | | | 65 | | | | 70 | | | 75 | | 80 | | |
| Ala | Ile | Ser | Phe | Ile | Asp | Glu | Ala | Arg | Ser | Lys | Lys | Cys | Gly | Val | Leu |
| | | | | | 85 | | | | 90 | | | 95 | | | |
| Val | His | Cys | Leu | Ala | Gly | Ile | Ser | Arg | Ser | Val | Thr | Val | Thr | Val | Ala |
| | | | | 100 | | | | 105 | | | 110 | | | | |
| Tyr | Leu | Met | Gln | Lys | Met | Asn | Leu | Ser | Leu | Asn | Asp | Ala | Tyr | Asp | Phe |
| | | | | 115 | | | | 120 | | | 125 | | | | |
| Val | Lys | Arg | Lys | Lys | Ser | Asn | Ile | Ser | Pro | Asn | Phe | Asn | Phe | Met | Gly |
| | | | | 130 | | | | 135 | | | 140 | | | | |
| Gln | Leu | Leu | Asp | Phe | Glu | Arg | Thr | Leu | Gly | Leu | Ser | | | | |
| 145 | | | | | 150 | | | | 155 | | | | | | |

<210> 5
<211> 156
<212> PRT
<213> Homo sapiens

| | | | | | | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 5 | | | | | | | | | | | | | | | |
| Ala | Thr | Pro | Pro | Pro | Val | Gly | Leu | Arg | Ala | Ser | Phe | Pro | Val | Gln | Ile |
| 1 | | | | | 5 | | | | 10 | | | 15 | | | |
| Leu | Pro | Asn | Leu | Tyr | Leu | Gly | Ser | Ala | Arg | Asp | Ser | Ala | Asn | Leu | Glu |
| | | | | | 20 | | | | 25 | | | 30 | | | |
| Ser | Leu | Ala | Lys | Leu | Gly | Ile | Arg | Tyr | Ile | Leu | Asn | Val | Thr | Pro | Asn |
| | | | | | 35 | | | | 40 | | | 45 | | | |
| Leu | Pro | Asn | Phe | Phe | Glu | Lys | Asn | Gly | Asp | Phe | His | Tyr | Lys | Gln | Ile |
| | | | | | 50 | | | | 55 | | | 60 | | | |
| Pro | Ile | Ser | Asp | His | Trp | Ser | Gln | Asn | Leu | Ser | Arg | Phe | Phe | Pro | Glu |
| | | | | | 65 | | | | 70 | | | 75 | | 80 | |
| Ala | Ile | Glu | Phe | Ile | Asp | Glu | Ala | Leu | Ser | Gln | Asn | Cys | Gly | Val | Leu |
| | | | | | 85 | | | | 90 | | | 95 | | | |
| Val | His | Cys | Leu | Ala | Gly | Val | Ser | Arg | Ser | Val | Thr | Val | Thr | Val | Ala |
| | | | | | 100 | | | | 105 | | | 110 | | | |
| Tyr | Leu | Met | Gln | Lys | Leu | His | Leu | Ser | Leu | Asn | Asp | Ala | Tyr | Asp | Leu |

| | | |
|---|-----|-----|
| 115 | 120 | 125 |
| Val Lys Arg Lys Lys Ser Asn Ile Ser Pro Asn Phe Asn Phe Met Gly | | |
| 130 | 135 | 140 |
| Gln Leu Leu Asp Phe Glu Arg Ser Leu Arg Leu Glu | | |
| 145 | 150 | 155 |

<210> 6
<211> 155
<212> PRT
<213> Homo sapiens

<400> 6

| | | |
|---|-----|-----|
| Leu Ser Gln Pro Cys Leu Pro Val Pro Ser Val Gly Leu Thr Arg Ile | | |
| 1 | 5 | 10 |
| Leu Pro His Leu Tyr Leu Gly Ser Gln Lys Asp Val Leu Asn Lys Asp | | |
| 20 | 25 | 30 |
| Leu Met Thr Gln Asn Gly Ile Ser Tyr Val Leu Asn Ala Ser Asn Ser | | |
| 35 | 40 | 45 |
| Cys Pro Lys Pro Asp Phe Ile Cys Glu Ser Arg Phe Met Arg Val Pro | | |
| 50 | 55 | 60 |
| Ile Asn Asp Asn Tyr Cys Glu Lys Leu Leu Pro Trp Leu Asp Lys Ser | | |
| 65 | 70 | 75 |
| Ile Glu Phe Ile Asp Lys Ala Lys Leu Ser Ser Cys Gln Val Ile Val | | |
| 85 | 90 | 95 |
| His Cys Leu Ala Gly Ile Ser Arg Ser Ala Thr Ile Ala Ile Ala Tyr | | |
| 100 | 105 | 110 |
| Ile Met Lys Thr Met Gly Met Ser Ser Asp Asp Ala Tyr Arg Phe Val | | |
| 115 | 120 | 125 |
| Lys Asp Arg Arg Pro Ser Ile Ser Pro Asn Phe Asn Phe Leu Gly Gln | | |
| 130 | 135 | 140 |
| Leu Leu Glu Tyr Glu Arg Thr Leu Lys Leu Leu | | |
| 145 | 150 | 155 |

<210> 7
<211> 154
<212> PRT
<213> Homo sapiens

<400> 7

| | | |
|---|-----|-----|
| Ser Asp Pro Arg Val Pro Ile Tyr Asp Gln Gly Gly Pro Val Glu Ile | | |
| 1 | 5 | 10 |
| Leu Pro Tyr Leu Tyr Leu Gly Ser Cys Asn His Ser Ser Asp Leu Gln | | |
| 20 | 25 | 30 |
| Gly Leu Gln Ala Cys Gly Ile Thr Ala Val Leu Asn Val Ser Ala Ser | | |
| 35 | 40 | 45 |
| Cys Pro Asn His Phe Glu Gly Leu Phe His Tyr Lys Ser Ile Pro Val | | |
| 50 | 55 | 60 |
| Glu Asp Asn Gln Met Val Glu Ile Ser Ala Trp Phe Gln Glu Ala Ile | | |
| 65 | 70 | 75 |
| Ser Phe Ile Asp Ser Val Lys Asn Ser Gly Gly Arg Val Leu Val His | | |
| 85 | 90 | 95 |
| Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu | | |
| 100 | 105 | 110 |
| Ile Gln Ser His Arg Val Arg Leu Asp Glu Ala Phe Asp Phe Val Lys | | |
| 115 | 120 | 125 |

Gln Arg Arg Gly Val Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu
 130 135 140
 Leu Gln Leu Glu Thr Gln Val Leu Cys His
 145 150

<210> 8
<211> 154
<212> PRT
<213> Homo sapiens

<400> 8
 Ser Ser Cys Ser Thr Pro Leu Tyr Asp Gln Gly Gly Pro Val Glu Ile
 1 5 10 15
 Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Arg Lys Asp
 20 25 30
 Met Leu Asp Ala Leu Gly Ile Thr Ala Leu Ile Asn Val Ser Ala Asn
 35 40 45
 Cys Pro Asn His Phe Glu Gly His Tyr Gln Tyr Lys Ser Ile Pro Val
 50 55 60
 Glu Asp Asn His Lys Ala Asp Ile Ser Ser Trp Phe Asn Glu Ala Ile
 65 70 75 80
 Asp Phe Ile Asp Ser Ile Lys Asn Ala Gly Gly Arg Val Phe Val His
 85 90 95
 Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu
 100 105 110
 Met Arg Thr Asn Arg Val Lys Leu Asp Glu Ala Phe Glu Phe Val Lys
 115 120 125
 Gln Arg Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu
 130 135 140
 Leu Gln Phe Glu Ser Gln Val Leu Ala Pro
 145 150

<210> 9
<211> 154
<212> PRT
<213> Homo sapiens

<400> 9
 Ser Ser Cys Gly Thr Pro Leu His Asp Gln Gly Gly Pro Val Glu Ile
 1 5 10 15
 Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ala Arg Arg Asp
 20 25 30
 Met Leu Asp Ala Leu Gly Ile Thr Ala Leu Leu Asn Val Ser Ser Asp
 35 40 45
 Cys Pro Asn His Phe Glu Gly His Tyr Gln Tyr Lys Cys Ile Pro Val
 50 55 60
 Glu Asp Asn His Lys Ala Asp Ile Ser Ser Trp Phe Met Glu Ala Ile
 65 70 75 80
 Glu Tyr Ile Asp Ala Val Lys Asp Cys Arg Gly Arg Val Leu Val His
 85 90 95
 Cys Gln Ala Gly Ile Ser Arg Ser Ala Thr Ile Cys Leu Ala Tyr Leu
 100 105 110
 Met Met Lys Lys Arg Val Arg Leu Glu Glu Ala Phe Glu Phe Val Lys
 115 120 125
 Gln Arg Arg Ser Ile Ile Ser Pro Asn Phe Ser Phe Met Gly Gln Leu

| | | |
|-----------------------------|-------------|-----|
| 130 | 135 | 140 |
| Leu Gln Phe Glu Ser Gln Val | Leu Ala Thr | |
| 145 | 150 | |

<210> 10
<211> 154
<212> PRT
<213> Homo sapiens

<400> 10

| | | | |
|---|-----|-----|----|
| Asn Val Ser Tyr Arg Pro Ala Tyr Asp Gln Gly Gly Pro Val Glu Ile | 10 | 15 | |
| 1 | 5 | | |
| Leu Pro Phe Leu Tyr Leu Gly Ser Ala Tyr His Ala Ser Lys Cys Glu | | | |
| 20 | 25 | 30 | |
| Phe Leu Ala Asn Leu His Ile Thr Ala Leu Asn Val Ser Arg Arg | | | |
| 35 | 40 | 45 | |
| Thr Ser Glu Ala Cys Met Thr His Leu His Tyr Lys Trp Ile Pro Val | | | |
| 50 | 55 | 60 | |
| Glu Asp Ser His Thr Ala Asp Ile Ser Ser His Phe Gln Glu Ala Ile | | | |
| 65 | 70 | 75 | 80 |
| Asp Phe Ile Asp Cys Val Arg Glu Lys Gly Gly Lys Val Leu Val His | | | |
| 85 | 90 | 95 | |
| Cys Glu Ala Gly Ile Ser Arg Ser Pro Thr Ile Cys Met Ala Tyr Leu | | | |
| 100 | 105 | 110 | |
| Met Lys Thr Lys Gln Phe Arg Leu Lys Glu Ala Phe Asp Tyr Ile Lys | | | |
| 115 | 120 | 125 | |
| Gln Arg Arg Ser Met Val Ser Pro Asn Phe Gly Phe Met Gly Gln Leu | | | |
| 130 | 135 | 140 | |
| Leu Gln Tyr Glu Ser Glu Ile Leu Pro Ser | | | |
| 145 | 150 | | |

<210> 11
<211> 163
<212> PRT
<213> Homo sapiens

<400> 11

| | | | |
|---|-----|-----|----|
| Asp Gly Ser Gly Cys Tyr Ser Leu Pro Ser Gln Pro Cys Asn Glu Val | 10 | 15 | |
| 1 | 5 | | |
| Thr Pro Arg Ile Tyr Val Gly Asn Ala Ser Val Ala Gln Asp Ile Pro | | | |
| 20 | 25 | 30 | |
| Lys Leu Gln Lys Leu Gly Ile Thr His Val Leu Asn Ala Ala Glu Gly | | | |
| 35 | 40 | 45 | |
| Arg Ser Phe Met His Val Asn Thr Asn Ala Asn Phe Tyr Lys Asp Ser | | | |
| 50 | 55 | 60 | |
| Gly Ile Thr Tyr Leu Gly Ile Lys Ala Asn Asp Thr Gln Glu Phe Asn | | | |
| 65 | 70 | 75 | 80 |
| Leu Ser Ala Tyr Phe Glu Arg Ala Ala Asp Phe Ile Asp Gln Ala Leu | | | |
| 85 | 90 | 95 | |
| Ala Gln Lys Asn Gly Arg Val Leu Val His Cys Arg Glu Gly Tyr Ser | | | |
| 100 | 105 | 110 | |
| Arg Ser Pro Thr Leu Val Ile Ala Tyr Leu Met Met Arg Gln Lys Met | | | |
| 115 | 120 | 125 | |
| Asp Val Lys Ser Ala Leu Ser Ile Val Arg Gln Asn Arg Glu Ile Gly | | | |
| 130 | 135 | 140 | |

Pro Asn Asp Gly Phe Leu Ala Gln Leu Cys Gln Leu Asn Asp Arg Leu
 145 150 155 160
 Ala Lys Glu

<210> 12
 <211> 140
 <212> PRT
 <213> Homo sapiens

<400> 12
 Met Glu Gly Thr Met Met Gln Gln Arg Pro Val Leu Ser Gln Gln
 1 5 10 15
 His Pro Ser Phe Ile Leu Asn Ser Ser Pro Ala His Ser Pro Met Ala
 20 25 30
 Arg Glu Ile Asp Asn Phe Tyr Pro Glu Arg Phe Thr Tyr His Asn Val
 35 40 45
 Arg Leu Trp Asp Glu Glu Ser Ala Gln Leu Leu Pro His Trp Lys Glu
 50 55 60
 Thr His Arg Phe Ile Glu Ala Ala Arg Ala Gln Gly Thr His Val Leu
 65 70 75 80
 Val His Cys Lys Met Gly Val Ser Arg Ser Ala Ala Thr Val Leu Ala
 85 90 95
 Tyr Ala Met Lys Gln Tyr Glu Cys Ser Leu Glu Gln Ala Leu Arg His
 100 105 110
 Val Gln Glu Leu Arg Pro Ile Ala Arg Pro Asn Pro Gly Phe Leu Arg
 115 120 125
 Gln Leu Gln Ile Tyr Gln Gly Ile Leu Thr Ala Arg
 130 135 140

<210> 13
 <211> 737
 <212> PRT
 <213> Drosophila melanogaster

<400> 13
 Gln Ser Glu Arg Arg Leu Ser Thr Asp Ser Thr Arg Ser Ser Asn Ser
 1 5 10 15
 Thr Gln Ser Asn Asn Ser Asp Ile Gln Leu His Leu Gln Ser Met Phe
 20 25 30
 Tyr Leu Leu Gln Arg Glu Asp Thr Leu Lys Met Ala Val Lys Leu Glu
 35 40 45
 Ser Gln Arg Ser Asn Arg Thr Arg Tyr Leu Val Ile Ala Ser Arg Ser
 50 55 60
 Cys Cys Arg Ser Gly Thr Ser Asp Arg Arg Arg His Arg Ile Met Arg
 65 70 75 80
 His His Ser Val Lys Val Gly Gly Ser Ala Gly Thr Lys Ser Ser Thr
 85 90 95
 Ser Pro Ala Val Pro Thr Gln Arg Gln Leu Ser Val Glu Gln Thr Ala
 100 105 110
 Thr Glu Ala Ser Ser Lys Cys Asp Lys Thr Ala Asp Lys Glu Asn Ala
 115 120 125
 Thr Ala Ala Gly Asp Asn Lys Asn Thr Ser Gly Met Glu Glu Ser Cys
 130 135 140
 Leu Leu Gly Ile Asp Cys Asn Glu Arg Thr Thr Ile Gly Leu Val Val

| | | | |
|---|-----|-----|-----|
| 145 | 150 | 155 | 160 |
| Pro Ile Leu Ala Asp Thr Thr Ile His Leu Asp Gly Asp Gly Gly Phe | | | |
| 165 | 170 | 175 | |
| Ser Val Lys Val Tyr Glu Lys Thr His Ile Phe Lys Pro Val Ser Val | | | |
| 180 | 185 | 190 | |
| Gln Ala Met Trp Ser Ala Leu Gln Thr Leu His Lys Val Ser Lys Lys | | | |
| 195 | 200 | 205 | |
| Ala Arg Glu Asn Asn Phe Tyr Ala Ser Gly Pro Ser His Asp Trp Leu | | | |
| 210 | 215 | 220 | |
| Ser Ser Tyr Glu Arg Arg Ile Glu Ser Asp Gln Ser Cys Leu Asn Glu | | | |
| 225 | 230 | 235 | 240 |
| Trp Asn Ala Met Asp Ala Leu Glu Ser Arg Arg Pro Pro Ser Pro Asp | | | |
| 245 | 250 | 255 | |
| Ala Ile Arg Asn Lys Pro Pro Glu Lys Glu Glu Thr Glu Ser Val Ile | | | |
| 260 | 265 | 270 | |
| Lys Met Lys Leu Lys Ala Ile Met Met Ser Val Asp Leu Asp Glu Val | | | |
| 275 | 280 | 285 | |
| Thr Ser Lys Tyr Ile Arg Gly Arg Leu Glu Glu Ile Leu Asp Met Asp | | | |
| 290 | 295 | 300 | |
| Leu Gly Glu Tyr Lys Ser Phe Ile Asp Ala Glu Met Leu Val Ile Leu | | | |
| 305 | 310 | 315 | 320 |
| Gly Gln Met Asp Ala Pro Thr Lys Ile Phe Glu His Val Tyr Leu Gly | | | |
| 325 | 330 | 335 | |
| Ser Glu Trp Asn Ala Ser Asn Leu Glu Glu Leu Gln Lys Asn Gly Val | | | |
| 340 | 345 | 350 | |
| Arg His Ile Leu Asn Val Thr Arg Glu Ile Asp Asn Phe Phe Pro Gly | | | |
| 355 | 360 | 365 | |
| Thr Phe Glu Tyr Phe Asn Val Arg Val Tyr Asp Asp Glu Lys Thr Asn | | | |
| 370 | 375 | 380 | |
| Leu Leu Lys Tyr Trp Asp Thr Phe Arg Tyr Ile Thr Arg Ala Lys | | | |
| 385 | 390 | 395 | 400 |
| Ala Glu Gly Ser Lys Val Leu Val His Cys Lys Met Gly Val Ser Arg | | | |
| 405 | 410 | 415 | |
| Ser Ala Ser Val Val Ile Ala Tyr Ala Met Lys Ala Tyr Gln Trp Glu | | | |
| 420 | 425 | 430 | |
| Phe Gln Gln Ala Leu Glu His Val Lys Lys Arg Arg Ser Cys Ile Lys | | | |
| 435 | 440 | 445 | |
| Pro Asn Lys Asn Phe Leu Asn Gln Leu Glu Thr Tyr Ser Gly Met Leu | | | |
| 450 | 455 | 460 | |
| Asp Ala Met Lys Asn Lys Glu Lys Leu Gln Arg Ser Lys Ser Glu Thr | | | |
| 465 | 470 | 475 | 480 |
| Asn Leu Lys Ser Thr Lys Asp Ala Arg Leu Leu Pro Gly Ser Glu Pro | | | |
| 485 | 490 | 495 | |
| Thr Pro Leu Ile Gln Ala Leu Asn Gln Ala Lys Ser Lys Ser Thr Gly | | | |
| 500 | 505 | 510 | |
| Glu Ala Gly Val Thr Pro Asp Gly Glu Glu Asp Gly Ser Arg Met | | | |
| 515 | 520 | 525 | |
| His Arg Arg Ser Ile Ala Gln Lys Ser Gln Arg Arg Met Val Arg Arg | | | |
| 530 | 535 | 540 | |
| Ser Ser Ser Thr Ser Pro Lys Thr Gln Thr Ala Val Val Thr Lys Gln | | | |
| 545 | 550 | 555 | 560 |
| Gln Ser Gln Ser Met Glu Asn Leu Thr Pro Glu Arg Ser Val Ala Glu | | | |
| 565 | 570 | 575 | |
| Glu Pro Lys Asn Met Arg Phe Pro Gly Ser Asn Gly Glu Asn Tyr Ser | | | |
| 580 | 585 | 590 | |
| Val Thr Gln Asn Gln Val Leu His Ile Gln Lys His Thr Pro Leu Ser | | | |
| 595 | 600 | 605 | |

Val Arg Thr Arg Ile His Asp Leu Glu Ala His Arg Ala Asp Gln Leu
 610 615 620
 Pro Gln Gln Pro Val Trp Thr Ser Leu Thr Lys Leu Ile Thr Gln Thr
 625 630 635 640
 Ser His Leu Gly Lys Ser Val Ser Gly Ser Ser Ser Gly Asn Ile Asp
 645 650 655
 Ser Arg Arg Asp Ser Ser Cys Ser Asp Val Phe Ser Ser Gln Val Asp
 660 665 670
 Ser Val Phe Ala Lys Asp Glu Gly Glu Lys Arg Gln Arg Arg Lys Thr
 675 680 685
 His Ser Trp Thr Glu Ser Leu Gly Pro Ser Gly Gly Ile Val Leu Asp
 690 695 700
 Pro Thr Pro Gln Gln Lys Gln Gln Ser Asn Ala Ile Leu Arg Pro
 705 710 715 720
 Arg Gly Thr Arg Gln Arg Glu Leu Pro Ser Arg His Ala Ser Trp Gly
 725 730 735
 Ser

<210> 14
 <211> 509
 <212> PRT
 <213> Homo sapiens

<400> 14
 Met Thr Leu Ser Thr Leu Ala Arg Lys Arg Lys Ala Pro Leu Ala Cys
 1 5 10 15
 Thr Cys Ser Leu Gly Gly Pro Asp Met Ile Pro Tyr Phe Ser Ala Asn
 20 25 30
 Ala Val Ile Ser Gln Asn Ala Ile Asn Gln Leu Ile Ser Glu Ser Phe
 35 40 45
 Leu Thr Val Lys Gly Ala Ala Leu Phe Leu Pro Arg Gly Asn Gly Ser
 50 55 60
 Ser Thr Pro Arg Ile Ser His Arg Arg Asn Lys His Ala Gly Asp Leu
 65 70 75 80
 Gln Gln His Leu Gln Ala Met Phe Ile Leu Leu Arg Pro Glu Asp Asn
 85 90 95
 Ile Arg Leu Ala Val Arg Leu Glu Ser Thr Tyr Gln Asn Arg Thr Arg
 100 105 110
 Tyr Met Val Val Val Ser Thr Asn Gly Arg Gln Asp Thr Glu Glu Ser
 115 120 125
 Ile Val Leu Gly Met Asp Phe Ser Ser Asn Asp Ser Ser Thr Cys Thr
 130 135 140
 Met Gly Leu Val Leu Pro Leu Trp Ser Asp Thr Leu Ile His Leu Asp
 145 150 155 160
 Gly Asp Gly Gly Phe Ser Val Ser Thr Asp Asn Arg Val His Ile Phe
 165 170 175
 Lys Pro Val Ser Val Gln Ala Met Trp Ser Ala Leu Gln Ser Leu His
 180 185 190
 Lys Ala Cys Glu Val Ala Arg Ala His Asn Tyr Tyr Pro Gly Ser Leu
 195 200 205
 Phe Leu Thr Trp Val Ser Tyr Tyr Glu Ser His Ile Asn Ser Asp Gln
 210 215 220
 Ser Ser Val Asn Glu Trp Asn Ala Met Gln Asp Val Gln Ser His Arg
 225 230 235 240
 Pro Asp Ser Pro Ala Leu Phe Thr Asp Ile Pro Thr Glu Arg Glu Arg

| | | |
|---|-----|-----|
| 245 | 250 | 255 |
| Thr Glu Arg Leu Ile Lys Thr Lys Leu Arg Glu Ile Met Met Gln Lys | | |
| 260 | 265 | 270 |
| Asp Leu Glu Asn Ile Thr Ser Lys Glu Ile Arg Thr Glu Leu Glu Met | | |
| 275 | 280 | 285 |
| Gln Met Val Cys Asn Leu Arg Glu Phe Lys Glu Phe Ile Asp Asn Glu | | |
| 290 | 295 | 300 |
| Met Ile Val Ile Leu Gly Gln Met Asp Ser Pro Thr Gln Ile Phe Glu | | |
| 305 | 310 | 315 |
| His Val Phe Leu Gly Ser Glu Trp Asn Ala Ser Asn Leu Glu Asp Leu | | |
| 325 | 330 | 335 |
| Gln Asn Arg Gly Val Arg Tyr Ile Leu Asn Val Thr Arg Glu Ile Asp | | |
| 340 | 345 | 350 |
| Asn Phe Phe Pro Gly Val Phe Glu Tyr His Asn Ile Arg Val Tyr Asp | | |
| 355 | 360 | 365 |
| Glu Glu Ala Thr Asp Leu Leu Ala Tyr Trp Asn Asp Thr Tyr Lys Phe | | |
| 370 | 375 | 380 |
| Ile Ser Lys Ala Lys Lys His Gly Ser Lys Cys Leu Val His Cys Lys | | |
| 385 | 390 | 395 |
| Met Gly Val Ser Arg Ser Ala Ser Thr Val Ile Ala Tyr Ala Met Lys | | |
| 405 | 410 | 415 |
| Glu Tyr Gly Trp Asn Leu Asp Arg Ala Tyr Asp Tyr Val Lys Glu Arg | | |
| 420 | 425 | 430 |
| Arg Thr Val Thr Lys Pro Asn Pro Ser Phe Met Arg Gln Leu Glu Glu | | |
| 435 | 440 | 445 |
| Tyr Gln Gly Ile Leu Leu Ala Ser Phe Leu Gly Leu Ile His Gly Gly | | |
| 450 | 455 | 460 |
| Arg Asp Lys Pro Trp Gly Glu Lys Ser Thr Glu Phe Glu Ser Val Asp | | |
| 465 | 470 | 475 |
| Leu Val Ser Ile Pro Gly Ser Pro Ser Cys Cys Asn Pro Glu Lys Leu | | |
| 485 | 490 | 495 |
| Leu His Ile Ser His Pro Tyr Leu Thr Pro Ser Ile Lys | | |
| 500 | 505 | |

<210> 15
<211> 552
<212> PRT
<213> Homo sapiens

<400> 15

| | | | |
|---|-----|-----|----|
| Met Val Leu Arg Leu Trp Ser Asp Thr Lys Ile His Leu Asp Gly Asp | | | |
| 1 | 5 | 10 | 15 |
| Gly Gly Phe Ser Val Ser Thr Ala Gly Arg Met His Ile Phe Lys Pro | | | |
| 20 | 25 | 30 | |
| Val Ser Val Gln Ala Met Trp Ser Ala Leu Gln Val Leu His Lys Ala | | | |
| 35 | 40 | 45 | |
| Cys Glu Val Ala Arg Arg His Asn Tyr Phe Pro Gly Gly Val Ala Leu | | | |
| 50 | 55 | 60 | |
| Ile Trp Ala Thr Tyr Tyr Glu Ser Cys Ile Ser Ser Glu Gln Ser Cys | | | |
| 65 | 70 | 75 | 80 |
| Ile Asn Glu Trp Asn Ala Met Gln Asp Leu Glu Ser Thr Arg Pro Asp | | | |
| 85 | 90 | 95 | |
| Ser Pro Ala Leu Phe Val Asp Lys Pro Thr Glu Gly Glu Arg Thr Glu | | | |
| 100 | 105 | 110 | |
| Arg Leu Ile Lys Ala Lys Leu Arg Ser Ile Met Met Ser Gln Asp Leu | | | |
| 115 | 120 | 125 | |

Glu Asn Val Thr Ser Lys Glu Ile Arg Asn Glu Leu Glu Lys Gln Met
 130 135 140
 Asn Cys Asn Leu Lys Glu Leu Lys Glu Phe Ile Asp Asn Glu Met Leu
 145 150 155 160
 Leu Ile Leu Gly Gln Met Asp Lys Pro Ser Leu Ile Phe Asp His Leu
 165 170 175
 Tyr Leu Gly Ser Glu Trp Asn Ala Ser Asn Leu Glu Glu Leu Gln Gly
 180 185 190
 Ser Gly Val Asp Tyr Ile Leu Asn Val Thr Arg Glu Ile Asp Asn Phe
 195 200 205
 Phe Pro Gly Leu Phe Ala Tyr His Asn Ile Arg Val Tyr Asp Glu Glu
 210 215 220
 Thr Thr Asp Leu Leu Ala His Trp Asn Glu Ala Tyr His Phe Ile Asn
 225 230 235 240
 Lys Ala Lys Arg Asn His Ser Lys Cys Leu Val His Cys Lys Met Gly
 245 250 255
 Val Ser Arg Ser Ala Ser Thr Val Ile Ala Tyr Ala Met Lys Glu Phe
 260 265 270
 Gly Trp Pro Leu Glu Lys Ala Tyr Asn Tyr Val Lys Gln Lys Arg Ser
 275 280 285
 Ile Thr Arg Pro Asn Ala Gly Phe Met Arg Gln Leu Ser Glu Tyr Glu
 290 295 300
 Gly Ile Leu Asp Ala Ser Lys Gln Arg His Asn Lys Leu Trp Arg Gln
 305 310 315 320
 Gln Thr Asp Ser Ser Leu Gln Gln Pro Val Asp Asp Pro Ala Gly Pro
 325 330 335
 Gly Asp Phe Leu Pro Glu Thr Pro Asp Gly Thr Pro Glu Ser Gln Leu
 340 345 350
 Pro Phe Leu Asp Asp Ala Ala Gln Pro Gly Leu Gly Pro Pro Leu Pro
 355 360 365
 Cys Cys Phe Arg Arg Leu Ser Asp Pro Leu Leu Pro Ser Pro Glu Asp
 370 375 380
 Glu Thr Gly Ser Leu Val His Leu Glu Asp Pro Glu Arg Glu Ala Leu
 385 390 395 400
 Leu Glu Glu Ala Ala Pro Pro Ala Glu Val His Arg Pro Ala Arg Gln
 405 410 415
 Pro Gln Gln Gly Ser Gly Leu Cys Glu Lys Asp Val Lys Lys Leu
 420 425 430
 Glu Phe Gly Ser Pro Lys Gly Arg Ser Gly Ser Leu Leu Gln Val Glu
 435 440 445
 Glu Thr Glu Arg Glu Glu Gly Leu Gly Ala Gly Arg Trp Gly Gln Leu
 450 455 460
 Pro Thr Gln Leu Asp Gln Asn Leu Leu Asn Ser Glu Asn Leu Asn Asn
 465 470 475 480
 Asn Ser Lys Arg Ser Cys Pro Asn Gly Met Glu Val Gly Arg Ala Arg
 485 490 495
 Pro Ala Gly Trp His Thr Pro Ser Leu Pro Ser His Ser Asn Trp Pro
 500 505 510
 Thr Ser Ala Ser Val Val Gly Thr Thr Gly Thr Arg His His Thr Gln
 515 520 525
 Leu Ile Phe Phe Tyr Cys Leu Leu Trp Ala Pro Ser Ser His Leu Gln
 530 535 540
 Gly Pro Glu Gly Ser Phe Thr Gly
 545 550

<211> 10
<212> PRT
<213> Homo sapiens

<400> 16
Val His Cys Lys Met Gly Val Ser Arg Ser
1 5 10

<210> 17
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Conserved homology region from eight DSPs having
MAP-kinase phosphatase activity

<400> 17
Asn Gly Arg Val Leu Val His Cys Gln Ala Gly Ile Ser Arg Ser Gly
1 5 10 15
Thr Asn Ile Leu Ala Tyr Leu Met
20

<210> 18
<211> 22
<212> PRT
<213> Homo sapiens

<400> 18
Val Leu Val His Cys Lys Met Gly Val Ser Arg Ser Ala Ala Thr Val
1 5 10 15
Leu Ala Tyr Ala Met Lys
20

<210> 19
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 19
tgtcgatgaa gtcacggtagc tgctggaggg 30

<210> 20
<211> 1416
<212> DNA
<213> Mus musculus

<400> 20
atggccctgg tcacagttag cgcgtcgccc ccgggcagcg gcgcctccac gcccgtgggg 60
ccctgggacc aggcggtcca gcgaaaggagt cgactccagc gaaggcagag ctggcggtg 120
ctccgtgggg ctgtcctggg actgcaggat ggaggggaca atgatgtgc agcagaggcc 180

agttctgagc caacagagaa ggccccgagt gaggaggagc tccacgggga ccagacagac 240
 ttcgggcaag gatcccagag tccccagaag caggaggagc agaggcagca cctgcaccc 300
 atggtagcgc tgctgaggcc gcaggatgac atccgcctgg cagcccagct ggaggcaccc 360
 cgccctcccc ggctccgcta cctgctggta gtttctacac gagaaggaga aggtctgagc 420
 caggatgaga cggtcctcct gggcgtggat ttccctgaca gcagctcccc cagctgcacc 480
 ctgggcctgg tcttgcctcct ctggagtgac acccaggtgt acttagatgg agacgggggc 540
 ttcagcgtga cgtctgggg gcaaagccgg atcttcaagc ccatctccat ccagaccatg 600
 tggccacac tccaggattt gcaccaagca tgtgaggcag ctctaggcag cggccttgta 660
 cgggtggca gtgcctcac ctgggccagc cactaccagg agagactgaa ctccgaacag 720
 agctgcctca atgagtgac ggctatggcc gacctggagt ctctgcggcc tcccagcgcc 780
 gagcctggcg ggtcctcaga acaggagcag atggagcagg cgatccgtgc tgagctgtgg 840
 aaagtgttgg atgtcagtga cctggagagt gtcacttcca aagagatccg ccaggctctg 900
 gagctgcgcc tggggctccc cctccagcag taccgtgact tcatacgacaa ccagatgctg 960
 ctgctgggtg cacagcggga ccgagcctcc cgcatcttcc cccacctcta cctgggctca 1020
 gagtggAACG cagcaaacct ggaggagctg cagaggaaca gggtcaccca catttgaac 1080
 atggcccccggg agattgacaa cttctaccct gagcgcttca cctaccacaa tgtgcgcctc 1140
 tgggatgagg agtcggccca gctgctgccc cacttggagg agacgcaccc cttcatttag 1200
 gctgcaagag cacagggcac ccacgtgctg gtccactgca agatgggggt cagccgctca 1260
 gcccacacag tgctggcta tgccatgaag cagtagaat gcagcctggta gcaggccctg 1320
 cggccacgtgc aggagctccg gccccatcgccc cgcccccaacc ctggcttccct ggcgcagctg 1380
 cagatctacc agggcatcct gacggccaga acctga 1416

<210> 21
 <211> 471
 <212> PRT
 <213> Mus musculus

<400> 21
 Met Ala Leu Val Thr Val Ser Arg Ser Pro Pro Gly Ser Gly Ala Ser
 1 5 10 15
 Thr Pro Val Gly Pro Trp Asp Gln Ala Val Gln Arg Arg Ser Arg Leu
 20 25 30
 Gln Arg Arg Gln Ser Phe Ala Val Leu Arg Gly Ala Val Leu Gly Leu
 35 40 45
 Gln Asp Gly Gly Asp Asn Asp Asp Ala Ala Glu Ala Ser Ser Glu Pro
 50 55 60
 Thr Glu Lys Ala Pro Ser Glu Glu Leu His Gly Asp Gln Thr Asp
 65 70 75 80
 Phe Gly Gln Gly Ser Gln Ser Pro Gln Lys Gln Glu Glu Gln Arg Gln
 85 90 95
 His Leu His Leu Met Val Gln Leu Leu Arg Pro Gln Asp Asp Ile Arg
 100 105 110
 Leu Ala Ala Gln Leu Glu Ala Pro Arg Pro Pro Arg Leu Arg Tyr Leu
 115 120 125
 Leu Val Val Ser Thr Arg Glu Gly Glu Gly Leu Ser Gln Asp Glu Thr
 130 135 140
 Val Leu Leu Gly Val Asp Phe Pro Asp Ser Ser Pro Ser Cys Thr
 145 150 155 160
 Leu Gly Leu Val Leu Pro Leu Trp Ser Asp Thr Gln Val Tyr Leu Asp
 165 170 175
 Gly Asp Gly Gly Phe Ser Val Thr Ser Gly Gly Gln Ser Arg Ile Phe
 180 185 190
 Lys Pro Ile Ser Ile Gln Thr Met Trp Ala Thr Leu Gln Val Leu His
 195 200 205
 Gln Ala Cys Glu Ala Ala Leu Gly Ser Gly Leu Val Pro Gly Gly Ser
 210 215 220
 Ala Leu Thr Trp Ala Ser His Tyr Gln Glu Arg Leu Asn Ser Glu Gln

| | | | |
|---|-----|-----|-----|
| 225 | 230 | 235 | 240 |
| Ser Cys Leu Asn Glu Trp Thr Ala Met Ala Asp Leu Glu Ser Leu Arg | | | |
| 245 | 250 | 255 | |
| Pro Pro Ser Ala Glu Pro Gly Gly Ser Ser Glu Gln Glu Gln Met Glu | | | |
| 260 | 265 | 270 | |
| Gln Ala Ile Arg Ala Glu Leu Trp Lys Val Leu Asp Val Ser Asp Leu | | | |
| 275 | 280 | 285 | |
| Glu Ser Val Thr Ser Lys Glu Ile Arg Gln Ala Leu Glu Leu Arg Leu | | | |
| 290 | 295 | 300 | |
| Gly Leu Pro Leu Gln Gln Tyr Arg Asp Phe Ile Asp Asn Gln Met Leu | | | |
| 305 | 310 | 315 | 320 |
| Leu Leu Val Ala Gln Arg Asp Arg Ala Ser Arg Ile Phe Pro His Leu | | | |
| 325 | 330 | 335 | |
| Tyr Leu Gly Ser Glu Trp Asn Ala Ala Asn Leu Glu Glu Leu Gln Arg | | | |
| 340 | 345 | 350 | |
| Asn Arg Val Thr His Ile Leu Asn Met Ala Arg Glu Ile Asp Asn Phe | | | |
| 355 | 360 | 365 | |
| Tyr Pro Glu Arg Phe Thr Tyr His Asn Val Arg Leu Trp Asp Glu Glu | | | |
| 370 | 375 | 380 | |
| Ser Ala Gln Leu Leu Pro His Trp Lys Glu Thr His Arg Phe Ile Glu | | | |
| 385 | 390 | 395 | 400 |
| Ala Ala Arg Ala Gln Gly Thr His Val Leu Val His Cys Lys Met Gly | | | |
| 405 | 410 | 415 | |
| Val Ser Arg Ser Ala Ala Thr Val Leu Ala Tyr Ala Met Lys Gln Tyr | | | |
| 420 | 425 | 430 | |
| Glu Cys Ser Leu Glu Gln Ala Leu Arg His Val Gln Glu Leu Arg Pro | | | |
| 435 | 440 | 445 | |
| Ile Ala Arg Pro Asn Pro Gly Phe Leu Arg Gln Leu Gln Ile Tyr Gln | | | |
| 450 | 455 | 460 | |
| Gly Ile Leu Thr Ala Arg Thr | | | |
| 465 | 470 | | |

<210> 22
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 22
gccgcactgg aaggagacgc accg

24

<210> 23
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 23
gccccagctg cagatctacc agggcat

27

<210> 24
<211> 28

<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 24
cactttccac agctcagcac ggatcgcc 28

<210> 25
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 25
cgcagagact ccaggtcgcc catagcc 27

<210> 26
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 26
gggggttgagg gaaggggccc tgc 23

<210> 27
<211> 6
<212> PRT
<213> Homo sapiens

<400> 27
Asp Ala Asp Glu Tyr Leu
1 5